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EXAMINER	
RAO, ANAND SHASHIKANT	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/722,474	JOCH ET AL.	
	Examiner	Art Unit	
	Andy S. Rao	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-20 on 8/9/07 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1-2, 5-6, 13-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Kikuchi et al., (US 2004/0008784 A1 hereinafter referred to as "Kikuchi").

Kikuchi discloses a method for predicting motion vectors associated with blocks of pixels of a picture to be included in a data stream for differential motion vector coding of a video signal (Kikuchi: paragraph [0010], lines 1-12), said method comprising the steps of: organizing a set of reference pictures into a pair of lists and according to each reference picture within said lists at least one reference index (Kikuchi: paragraph [0038], lines 1-6); associating with selected ones of said blocks in said video signal at least one motion vector that references a respective one of said lists (Kikuchi: paragraph [0058], lines 1-9), each vector associated with a selected one of the blocks referencing a different list of said lists, each vector defining disposition of which of said selected one of the blocks relative to a reference picture in the respective one of said lists; (Kikuchi: paragraph [0061], lines 1-9); and computing a predicted value for a current vector of said vectors for a current block from vectors of adjacent blocks referencing the same list of reference pictures as the current vector (Kikuchi: paragraph [0102], lines 1-5), wherein prediction of a motion vector that selects a reference picture using a first list of reference pictures is not dependent upon motion vectors whose reference pictures are selected using a second list of reference pictures (Kikuchi: paragraph [0077], lines 1-8), as in claim 1

Regarding claim 2, Kikuchi discloses wherein said computing uses the values of spatially neighboring motion vectors that use the same list of reference pictures as the current vector regardless of the relative temporal direction of the reference pictures selected for the current vector and neighboring motion vectors (Kikuchi: paragraph [0054, lines 1-8), as in the claim.

Regarding claims 5-6 and wherein said motion vectors may be computed using one of a plurality of predefined computation strategies (Kikuchi: paragraph [0151], lines 1-9), as in the claim.

Regarding claims 13-14, Kikuchi discloses said three neighboring blocks are a block to the left of the current block, a block above the current block, and a the block above and to the right of the current block (Kikuchi: figure 12), as in the claim.

Regarding claim 15, Kikuchi discloses wherein if the block above and to the right is not available then the block above and to the left is used, if available (Kikuchi: paragraph [0175], lines 1-7), as in the claim.

Regarding claim 16, Kikuchi discloses wherein if no motion vector using the same reference picture list is available in one of said three neighboring blocks, a zero-valued motion vector, (0,0), is used in place of the motion a vector from that block one of said three neighboring blocks (Kikuchi: paragraph [0171], lines 1-5), as in the claim.

Regarding claim 17, Kikuchi discloses wherein if the blocks above, above and to the left, and above and to the right of the current block are not available within a same picture or slice as the current block, and a block to the left of the current block is available, the current vector is set equal to a motion vector used for the block to the left of the current block is utilized. (Kikuchi: paragraph [0175], lines 1-7), as in the claim.

Regarding claim 18, Kikuchi discloses wherein if a left block is an only available block of the three selected neighboring blocks, and if one and only one of the three neighboring blocks contains a motion vector that uses the same reference picture list as the current block being predicted and uses a reference index equal to the reference index used for the current block (Kikuchi: paragraph [0183], lines 1-8), the predicted motion current vector is set equal to the value of said motion vector (Kikuchi: paragraph [0102], lines 1-3), as in the claim.

Regarding claim 19, Kikuchi discloses wherein if the predicted motion current vector has not been computed according to the conditions of either of claims 17 or claim 18 then the predicted motion current vector is computed by taking a component-wise median of three neighboring motion vectors (Kikuchi: paragraph [0084], lines 1-5), as in the claim.

Regarding claim 20, Kikuchi discloses wherein if no motion vector using the same reference picture list is available in one of said three neighboring blocks, a zero-valued motion vector, (0,0), is used in place of the motion a vector from that block one of said three neighboring blocks (Kikuchi: paragraph [0171], lines 1-5).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3-4, 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi et al., (US 2004/0008784 A1 hereinafter referred to as "Kikuchi") in view of Novotny et al., (US: 2005/0123282 hereinafter referred to as "Novotny").

Kikuchi discloses a method for predicting motion vectors associated with blocks of pixels of a picture to be included in a data stream for differential motion vector coding of a video signal (Kikuchi: paragraph [0010], lines 1-12), said method comprising the steps of: organizing a set of reference pictures into a pair of lists and according to each reference picture within said lists at least one reference index (Kikuchi: paragraph [0038], lines 1-6); associating with selected ones

of said blocks in said video signal at least one motion vector that references a respective one of said lists (Kikuchi: paragraph [0058], lines 1-9), each vector associated with a selected one of the blocks referencing a different list of said lists, each vector defining disposition of which of said selected one of the blocks relative to a reference picture in the respective one of said lists; (Kikuchi: paragraph [0061], lines 1-9); and computing a predicted value for a current vector of said vectors for a current block from vectors of adjacent blocks referencing the same list of reference pictures as the current vector (Kikuchi: paragraph [0102], lines 1-5), wherein prediction of a motion vector that selects a reference picture using a first list of reference pictures is not dependent upon motion vectors whose reference pictures are selected using a second list of reference pictures (Kikuchi: paragraph [0077], lines 1-8), as in claims 3-4. However, Kikuchi fails to disclose using the motion compensation based video coder motion vector coding supports a plurality of block partition sizes for performing motion compensation, wherein the block partition sizes for motion compensation include partitions of 16xl 6, 16x8, 8x16, 8x8, 8x4, 4x8, and 4x4 luminance samples, as in the clams. Novotny discloses than in an MBAFF structured coding method (Novotny: paragraph [0037], lines 1-20), it is known a plurality of block partition sizes for performing motion compensation (Novotny: paragraph [0033], lines 1-20), wherein the block partition sizes for motion compensation (Novotny: paragraph [0030], lines 1-8) include partitions of 16xl 6, 16x8, 8x16, 8x8, 8x4, 4x8, and 4x4 luminance samples (Novotny: paragraph [0031], lines 1-10) in order to advantageously encode interlaced or progressive pictures (Novotny: paragraph [0024], lines 1-19). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate the multiple block partition sizes of Novotny into the Kikuchi method in order to advantageous encode interlaced or progressive

pictures. The Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has all of the features of claims 3-4.

Kikuchi discloses a method for predicting motion vectors associated with blocks of pixels of a picture to be included in a data stream for differential motion vector coding of a video signal (Kikuchi: paragraph [0010], lines 1-12), said method comprising the steps of: organizing a set of reference pictures into a pair of lists and according to each reference picture within said lists at least one reference index (Kikuchi: paragraph [0038], lines 1-6); associating with selected ones of said blocks in said video signal at least one motion vector that references a respective one of said lists (Kikuchi: paragraph [0058], lines 1-9), each vector associated with a selected one of the blocks referencing a different list of said lists, each vector defining disposition of which of said selected one of the blocks relative to a reference picture in the respective one of said lists; (Kikuchi: paragraph [0061], lines 1-9); and computing a predicted value for a current vector of said vectors for a current block from vectors of adjacent blocks referencing the same list of reference pictures as the current vector (Kikuchi: paragraph [0102], lines 1-5), wherein prediction of a motion vector that selects a reference picture using a first list of reference pictures is not dependent upon motion vectors whose reference pictures are selected using a second list of reference pictures (Kikuchi: paragraph [0077], lines 1-8), wherein said motion vectors may be computed using one of a plurality of predefined computation strategies (Kikuchi: paragraph [0151], lines 1-9), as in claim 7. However, Kikuchi fails to disclose wherein said first strategy is applied only when a block partition size of the current block for the motion current vector is being predicted is 16x8 or 8x l6 luminance samples, as in the claim. Novotny discloses that in an MBAFF structured coding method (Novotny: paragraph [0037], lines 1-20), it is known a

plurality of block partition sizes for performing motion compensation (Novotny: paragraph [0033], lines 1-20), wherein the block partition sizes for motion compensation (Novotny: paragraph [0030], lines 1-8) include partitions of 16x8, 8x16 luminance samples (Novotny: paragraph [0031], lines 1-10) in order to advantageously encode interlaced or progressive pictures (Novotny: paragraph [0024], lines 1-19). Accordingly, given this teaching, it would have been obvious for one of ordinary skill in the art to incorporate the multiple block partition sizes of Novotny into the Kikuchi method in order to advantageous encode interlaced or progressive pictures. The Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has all of the features of claim 7.

Regarding claim 8, the Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has wherein if the current vector applies to a top half of a 16x8 partitioned macroblock and a block immediately above the current block in the picture contains a motion vector that uses the same reference picture list and reference index as the current motion vector, the predicted motion current vector is set equal to the motion vector that uses the same reference picture list in the block immediately above (Kikuchi: paragraph [0177], lines 1-10), as in the claim.

Regarding claim 9, the Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has wherein if the current vector applies to the bottom half of a 16x8 partitioned macroblock and a block immediately left of the current block contains a motion vector that uses the same reference picture list and reference index as the current motion vector, the predicted-motion current vector is set equal to the motion vector that uses the same reference

picture list in the block immediately left of the current block (Kikuchi: paragraph [0185], lines 1-7), as in the claim.

Regarding claim 10, the Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has wherein if the current vector applies to a left half of an 8x16 partitioned macroblock and a the block immediately left contains a motion vector that uses the same reference picture list and reference index as the current motion vector, the predicted motion current vector is set equal to the motion vector that uses the same reference picture list in the block immediately left (Kikuchi: paragraph [0175], lines 1-7), as in the claim.

. Regarding claim 11, the Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has wherein if the current vector applies to a right half of an 8x16 partitioned macroblock, and a block above and to the right of the current block is available, and the above and to the right above right block contains a motion vector that uses the same reference picture list and reference index as the current motion vector, the predicted motion current vector is set equal to the motion vector, that uses the same reference picture list in the block above and to the fight of the current block (Kikuchi: paragraph [0176], lines 1-12), as in the claim.

Regarding claim 12, the Kikuchi method, now incorporating the Novotny teaching of multiple partition sizes, has wherein if the current motion vector applies to a the fight half of an 8x16 partitioned macroblock, and a the block immediately above and to the right is not available but a the block above and to the left is available, and the block above and to the left contains a motion vector that uses the same reference picture list and reference index as the current mot-ion vector, the predicted motion current vector is set equal to the motion vector that uses the same

reference picture list in the block above and to the left (Kikuchi: paragraph [0177], lines 1-12), as in the claim.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Srinivasan discloses coding of motion vector information. Winger discloses a system and method for direct motion vector prediction in bi-predictive video frames and fields.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andy S. Rao whose telephone number is (571)-272-7337. The examiner can normally be reached on Monday-Friday 8 hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571)-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Andy S. Rao

Primary Examiner
Art Unit 2621

asr
October 15, 2007